

**METHODS FOR FABRICATING SEGMENTED RETICLE BLANKS
HAVING UNIFORMLY MACHINED GRILLAGE, AND RETICLE BLANKS
AND RETICLES FORMED THEREBY**

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Abstract of the Disclosure

Methods are disclosed for manufacturing segmented reticle blanks for use in fabricating segmented reticles for charged-particle-beam (e.g., electron beam) microlithography. The reticle blank includes a grillage of support struts having a substantially uniform depth and width throughout the reticle blank. A reticle substrate is prepared from a silicon substrate wafer. Beginning on a second major surface of the wafer, discharge-machining is performed part way into the thickness dimension of the silicon substrate so as to form from the silicon substrate a grillage of intersecting struts separating respective subfield regions from one another. In regions not occupied by respective struts, further machining into the thickness dimension is performed by dry-etching until each subfield region includes a respective membrane formed by a residual portion of the reticle substrate extending into the thickness dimension from the first major surface.

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